WHAT IS CLAIMED IS:

1. A hybrid optical device comprising:

a first set of one or more input optical channels that convey one or more beams of radiation;

a second set of one or more output optical channels which receive radiation from said one or more beams;

a filter passing at least one first portion of the one or more beams from selected channel(s) of the first set and reflecting at least one second portion of the one or more beams;

a reflective surface reflecting at least some of the radiation in said at least one first portion; and

an actuator that moves said surface to each of a plurality of positions so that the one or more beams travel from selected channel(s) of said first set to selected channel(s) of said second set, wherein said surface at each of the plurality of positions causes a selected corresponding portion of the radiation passed by the filter to be directed to the selected channel(s) in the second set.

2. The device of claim 1, wherein said filter reflects a selected portion of each of wavelength components in the radiation in at least one of the beam(s) and passes the remainder of such wavelength components.

3. The device of claim 2, wherein said surface at each of the plurality of positions causes a selected portion of each of wavelength components in the radiation passed by the filter to be directed to the selected channel(s) in the second set and passes the remainder of such wavelength components.

4. The device of claim 3, further comprising a detector detecting the remainder of such wavelength components to monitor power of radiation directed to the selected channel(s) in the second set.

5. The device of claim 4, wherein said detector comprises a photodetector.

6. The device of claim 2, wherein said surface at each of the plurality of positions causes substantially all of the radiation in the remainder of such wavelength components to be reflected to channel(s) in the second set.

7. The device of claim 2, wherein said surface at the plurality of positions causes different intensities of the radiation in the remainder of such wavelength components to be reflected to channel(s) in the second set.

8. The device of claim 1, wherein said filter is a bandpass filter that reflects wavelength components of the radiation in at least one of the beam(s) from the first set having wavelengths outside its passband and passes wavelength components of the radiation in the beam(s) having wavelengths within its passband.

9. The device of claim 8, wherein said surface at each of the plurality of positions causes a selected portion of each of wavelength components in the radiation passed by the filter to be directed to the selected channel(s) in the second set and passes the remainder of such wavelength components.

10. The device of claim 9, further comprising a detector detecting the remainder of such wavelength components to monitor power of radiation directed to the selected channel(s) in the second set.

11. The device of claim 10, wherein said detector comprises a photodetector.

12. The device of claim 8, wherein said surface at each of the plurality of positions causes substantially all of the radiation in the remainder of such wavelength components to be reflected to channel(s) in the second set.

13. The device of claim 8, wherein said surface at the plurality of positions causes different intensities of the radiation in the remainder of such wavelength components to be reflected to channel(s) in the second set.

14. The device of claim 1, wherein a total number of optical channels of said first set and said second set together is more than two.

15. The device of claim 1, wherein a first of the plurality of positions corresponds to a first combination of optical paths through which said beam(s) travels from said first set to said second set, and a second of the plurality of positions corresponds to a second combination of optical paths through which said beam(s) travels from said first set to said second set, wherein said first combination is different from said second combination, so that the device acts as a switch when the actuator moves the surface between the first and second of the plurality of positions.

16. The device of claim 15, wherein said surface at the first and second of the plurality of positions causes substantially all of the radiation in the remainder of such wavelength components to be reflected to channel(s) in the second set.

17. The device of claim 15, wherein said surface at the first and second of the plurality of positions causes different intensities of the radiation in the remainder of such wavelength components to be reflected to channel(s) in the second set so that the device acts as a switch/attenuator.

18. The device of claim 1, wherein said surface at at least two of the plurality of positions causes a different selected corresponding portion of the radiation passed by the filter to be directed to the selected channel(s) in the second set, so that the device acts as a switch and an attenuator when the actuator moves the surface between the at least two of the plurality of positions.

19. The device of claim 1, wherein the first set includes only one optical channel carrying one beam of radiation, and the second set includes one or more optical channels, said filter being a narrow bandpass filter that reflects radiation in the beam(s) outside its passband to one of the channels in the second set and passes radiation in the beam(s) within its passband, and wherein the actuator moves said surface to positions so that radiation passed by the filter is reflected by the surface to one of the channels in the second set.

20. The device of claim 19, wherein the actuator moves said surface to positions so that radiation passed by the filter is reflected by the surface to one of the channels in the second set substantially without loss, so that the device is a switch/WDM.

21. The device of claim 19, wherein the actuator moves said surface to positions so that radiation passed by the filter is reflected by the surface to one of the channels in the second set with selected amount of attenuation, so that the device is a WDM and a switch/attenuator.

22. The device of claim 19, wherein the second set includes two channels, so that the actuator moves the surface so that the filter and the surface reflect radiation from the one beam to the same or different channels in the second set.

23. The device of claim 1, wherein the first set includes only one optical channel carrying one beam of radiation, and the second set includes one or more optical channels, said filter being a broadband filter that reflects a portion of radiation of each of the wavelength components in the beam(s) to a first channel of the channels in the second set and passes the remainder of such wavelength components, and wherein the actuator moves said surface to positions so that radiation passed by the filter is reflected by the surface to one of the channels in the second set.

24. The device of claim 23, wherein the second set includes two optical channels, and wherein the actuator moves said surface to one or more positions so that a selected amount of the radiation passed by the filter is reflected by the surface to the channels in the second set other than the first channel, so that the device is a tap and an attenuator.

25. The device of claim 1, wherein the first and second sets each includes only one optical channel, said filter being a narrow bandpass filter that reflects radiation in the beam(s) outside its passband to the second set and passes radiation in the beam(s) within its passband, and wherein said surface at each of the plurality of positions causes a

different selected corresponding portion of the radiation passed by the filter to be directed to the channel in the second set, so that the device is an attenuator/WDM.

26. The device of claim 1, further comprising an optical element in an optical path between the first and second sets, said element focusing said one or more beams from the first set and to the second set.

27 The device of claim 1, further comprising:

a ferrule which supports said first set and said second set;

a package encasing said surface and said actuator; and

a transparent window on said package.

28. The device of claim 1, further comprising a gradient index lens between the input and output channels on one hand and the filter and the surface on the other.

29. The device of claim 1, wherein said actuator moves said surface by electrostatic force.

30. The device of claim 1, further comprising a silicon substrate, said surface and said actuator being connected to or forming a part of the silicon substrate.

31. The device of claim 30, wherein said actuator rotates said surface.

32. The device of claim 1, said actuator comprising a plurality of interdigitated fingers.

33. The device of claim 1, wherein said filter and surface are such that the input and output channels are bi-directional.

34. The device of claim 1, said first set comprising only one input channel and said second set comprising two output channels.

35. The device of claim 1, said first set comprising two input channels and said second set comprising one output channel.

36. The device of claim 1, said first set comprising two input channels and said second set comprising two output channels.

37. A hybrid optical device comprising:

an input optical channel that conveys an input beam of radiation;

a set of one or more output optical channels which receive radiation from said one beam;

a filter passing a first portion of the input beam and reflecting a second portion of the beam;

a reflective surface reflecting at least some of the radiation in said first portion; and

an actuator that moves said surface to each of a plurality of positions so that the device directs radiation in the first and second portions reflected to selected channel(s) in said set, wherein said surface at each of the plurality of positions causes a selected amount of the first portion to be directed to the selected channel(s) in the set.

38. The device of claim 37, wherein said set comprises one output optical channel, said filter having a passband, so that the first portion comprises wavelengths having wavelengths within the passband, and the second portion comprises wavelengths having wavelengths outside the passband. (EMB 1)

39. The device of claim 38, wherein said surface at at least two of the plurality of positions reflect different amounts of the first portion to the output channel, so that the device acts as a WDM/attenuator.

40. The device of claim 37, wherein said set comprises two output optical channels, wherein the filter and said surface at a first of the plurality of positions reflect the two portions to the same channel in the set, and wherein the filter and said surface at a second of the plurality of positions reflect the two portions to different channels in the set.

41. The device of claim 40, wherein said filter reflects a selected fraction of each of wavelength components in the radiation in the beam and passes the remainder of such wavelength components.

42. The device of claim 41, wherein said surface at at least two of the plurality of positions reflect different amounts of the first portion to the output channel, so that the device acts as a switch/attenuator.

43. The device of claim 40, wherein said filter is a bandpass filter, so that the second portion comprises wavelength components of the radiation in the beam having wavelengths outside its passband and the first portion comprises wavelength components of the radiation in the beam having wavelengths within its passband.

44. The device of claim 43, wherein said surface at each of the plurality of positions causes substantially all of the radiation in the first portion to be reflected to one of the two channels in the set.

45. The device of claim 43, wherein said surface at at least two of the plurality of positions reflect different amounts of the first portion to the same output channel, so that the device acts as a WDM switch/attenuator hybrid. (EMB 5)

46. The device of claim 37, wherein said set comprises two output optical channels, wherein the filter and said surface at a first of the plurality of positions reflect the two portions to the same channel in the set, and wherein said surface at the first and at least a second of the plurality of positions reflect different amount of the first portion to the same output channel, so that the device acts as a WDM attenuator hybrid. (EMB 3)

47. A hybrid optical device comprising:

a first set of one or more input optical channels that convey one or more beams of radiation;

a second set of one or more output optical channels which receive radiation from said one or more beams;

a filter passing at least one first portion of the one or more beams from selected channel(s) of the first set and reflecting at least one second portion of the one or more beams;

a reflective surface reflecting at least some of the radiation in said at least one first portion; and

an actuator that moves said filter to each of a plurality of positions so that the one or more beams travel from selected channel(s) of said first set to selected channel(s) of said second set, wherein said filter at each of the plurality of positions causes a selected corresponding portion of the radiation to be directed to the selected channel(s) in the second set.

48. A method for optical transmission, comprising:

conveying one or more beams of radiation through a first set of one or more input optical channels;

passing at least one first portion of the one or more beams from the first set and reflecting at least one second portion of the one or more beams by means of a filter;

reflecting at least some of the radiation in said at least one first portion by means of a reflective surface; and

moving said surface to each of a plurality of positions so that the radiation reflected by the filter and the surface is directed to selected channel(s) in a second set of one or more output optical channels, wherein said surface at each of the plurality of positions causes a selected corresponding part of the radiation passed by the filter to be directed to the selected channel(s) in the second set.

49. A method for optical transmission, comprising:

conveying one or more beams of radiation to a first set of one or more input optical channels;

passing at least one first portion of the one or more beams from the first set and reflecting at least one second portion of the one or more beams by means of a filter;

reflecting at least some of the radiation in said at least one first portion by means of a reflective surface; and

moving said filter to each of a plurality of positions so that the radiation reflected by the filter and the surface is directed to selected channel(s) in a second set of one or more output optical channels, wherein said filter at each of the plurality of positions causes a selected corresponding portion of the radiation reflected by the filter to be directed to the selected channel(s) in the second set.